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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/980,508	11/02/2001	M. Barr Klaus	99017US	5552
26880	7590	01/07/2004	EXAMINER	
MILACRON INC. 2090 FLORENCE AVE. CINCINNATI, OH 45206			LUK, EMMANUEL S	
			ART UNIT	PAPER NUMBER
			1722	

DATE MAILED: 01/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/980,508	Applicant(s) KLAUS ET AL. 	
	Examiner Emmanuel S. Luk	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The applicants have changed the direction of which the spring biases the knock-out bar in relation to the mold member from the previous direction in the previously presented claim. The direction also seems to be moving knock-out bar in the drawings provided by the applicants. Clarification is needed concerning the springs.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites in the preamble of the ejector plate, ejector rod and electric motor and later specifies the ejector apparatus as further comprising a cam connected to the shaft. The invention appears to be the cam and cam follower located in the apparatus.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stehr (4735080) in view of Kamiguchi (5736079) and Rees (3726625).

Stehr teaches and ejector drive mechanism with a rotational shaft (13), a cam disk (11) that has a cam follower (16) that coupled to the ejector pin (9) translates the rotational movement of the shaft into linear back and forth movement of the ejector pin. A motor is needed to drive the rotation of the shaft.

Stehr fails to teach pins having enlarged stop members, pins having outward extending flanges and compression spring, ejector rods slidably carried by knockout bar and spring positioned between end of ejector rod and knockout bar and an electric motor.

Kamiguchi et al teaches the claimed apparatus with a servomotor (M) controlled by a pulse coder (P) that drives a belt (14) moving the pusher rod to move the ejector plate (16) that carries the ejector pins (6) towards or away from the molding surface and product (7). The use of electric motors is well known in industrial practices since electric is a common source of power and having equivalent function as other types of drive motors. Stehr fails to disclose a specific type of motor. However, any type of motor could be used that have the equivalent function of rotational movement of the shaft, and a common motor used is an electric motor.

Rees teaches a knockout bar (21; supporting plate) slidably movable on the ejector pins (20), ejector pins mounted on the ejector plates (27; collars), an outward extending flanges (25; head) and spring (26) on the pusher rod (24) for urging the rod towards the rear for ejecting mold articles. The ejector rods being the larger diameter portion of the ejector pins behind the ejector plates away from the mold and an enlarged

stop member located at the end of the ejector rods on the other side of the knockout bar (Fig. 1).

It would have been obvious to one of ordinary skill in the art to have modified Stehr with stop members, flange and spring as taught by Rees in order to limit rearward displacement of the rod and to eject the mold articles when the rod is urged toward the mold and an electric motor as taught by Kamiguchi, a well known device that is common in both commercial and heavy industry in order to provide a readily available drive source that can be powered by any readily available power outlet.

9. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiguchi (5736079) in view of Stehr (4735080) and Rees (3726625) as applied to claims 1-5 above, and further in view of Rahn et al (5067892) and Sharman (3680998).

Stehr, Kamiguchi et al and Rees fail to teach a cam track offset from the axis of the drive shaft, the motor driving a pulley including a one way clutch coupled with the ejector drive system, and a second pulley drive system for the opposite direction.

Rahn et al teaches a cam track that is offset from the axis of the drive shaft (31) as it rotates the cam member (30) for the purpose of linear movement of the ejector rod (6) towards and away from the mold. The movement of the cam follower towards and away from the mold or another direction as taught by Rahn et al have the equivalent function in that the ejector pins are operably connected to the cam follower and the pins themselves are moving towards and away relative to the mold.

Sharman teaches an electric motor (19) that connects to a pulley and clutch mechanism for driving the main drive shaft (20) (Col. 2, lines 49-52). The use of a secondary pulley and clutch system for the other direction is a duplication of parts. It is well settled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 124 USPQ 378 (CCPA 1960).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention was made to have changed Stehr with an offset cam track as taught by Rahn et al in order to allow linear movement of the ejector pins towards and away relative to the mold and pulley and clutch mechanism as taught by Sharman in order to drive the main drive shaft.

10. Claims 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stehr (4735080) in view of Kamiguchi (5736079) and Rees (3726625) as applied to claims 1-5 above, and further in view of Stehr (4552525).

Stehr fail to teach a cam member with means for adjusting the relative offset of the cam track and cam track having portion that generates a pulsation in the linear movement of the ejector plate when cam member is rotated.

Stehr ('525) teaches cam member (21) that has adjustable means (19) located in the slots (18) that provide means for adjusting the relative offset of the cam track. The shape of the cam allows for the pulsation in the linear movement of the pin (2).

It would have been obvious to one of ordinary skill in the art to modify Stehr ('080) with means for adjusting the relative offset of the cam track and the shape of the

cam track varies the substantial circular path of the cam track as taught by Stehr ('525) because it allows for adjustment of the movement of the elements as desired by the operator.

Response to Arguments

11. Applicant's arguments with respect to claims 1-8, 11 and 12 have been considered but are moot in view of the new ground(s) of rejection.

The applicants argue the combination of the prior art references for teaching the invention. The claimed invention appears to be ejection apparatus comprising of a cam member and cam follower. Stehr teaches the cam and cam follower which seems to be the claimed invention, this is connected to a plurality of ejector and drive mechanisms to move ejector pins in an injection molding apparatus. The new rejection emphasizes the rejection of the claimed invention. The use of a cam to drive the known mold elements is known in the molding arts.

The change in the direction of the springs biasing the knock-out bar in a particular direction in relation to the mold member has been changed. The Examiner makes note of this and looks to the drawings provided by the applicants for guidance.

Allowable Subject Matter

12. Claims 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: The claimed invention teaches an ejection apparatus having an ejector pin mounted in an ejector plate, ejector rod from the ejector plate supported in a movable platen, the ejector plate is driven by an electric motor having a rotatable output shaft, wherein a cam member is connected to the output shaft, a cam follower is coupled with the knockout bar and a spring is positioned between the end of the ejector rod and the knockout bar so that the knockout bar is biased toward the mold member, such that the cam follower interacts with the cam member to convert the rotation of the motor drive shaft to the linear movement of the ejector plate.

The prior art specifically fails to teach the ejection apparatus further having the cam track having means for adjusting the relative offset by displacing the location of the drive shaft relative to the central axis of the cam member and further comprising a bearing block receiving the drive shaft on the cam member and means for adjusting the mounting position of the bearing block in the member.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (571) 272-1134. The examiner can normally be reached on Monday-Thursday 7 to 4 and alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

EL


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700